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AUTHOR Brock, Stephen C., Comp.
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ABSTRACT

A guide to teaching the large introductory college course is presented. The primary sources of information were the experiences of faculty members teaching large introductory courses (100 or more students) at Kansas State University. Faculty members provided responses concerning the special pedagogical problems faced by teachers of the large introductory courses, solutions to problems, and general recommendations for teachers. Participants identified four main problem areas: student anonymity, student heterogeneity, utilizing teaching assistants, and testing and grading. In the large introductory course, the individual student frequently feels that he or she is occupying a space in a huge room and that nobody knows or cares. Students can differ in these courses because of ages, different degrees of abilities and preparation, academic interests, and motivation. A problem exists because graduate students who assist in the instruction of a large introductory course frequently have little teaching experience. The large course that responds to the constraints of size by relying on objective, computer, or other machine-scored examinations often faces some student resistance and resentment. Approaches to dealing with these problems are presented, including subdividing the groups or using "modular" instruction. (SW)

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Practitioners' Views on . . .

TEACHING THE LARGE INTRODUCTORY COLLEGE COURSE

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compiled by

Stephen C. Brock

Center for Faculty Evaluation and Development
in Higher Education
1627 Anderson Avenue
Manhattan, Kansas 66502

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Practitioners' Views on . . .

TEACHING THE LARGE INTRODUCTORY COLLEGE COURSE

Purpose

This Practitioners' Guide is offered as one means to share the insights, observations and recommendations of experienced college teachers with their colleagues. It is devoted to the topic of teaching the large introductory college course. The primary source of information was the experiences of some faculty teaching large introductory courses (100 or more students) at Kansas State University. Their recommendations result from their first-hand experience rather than from any systematic studies. It is hoped that this guide provides information useful to colleagues who may be facing, for the first time, the challenges of the large introductory course and/or those with service stripes who may find a new perspective on their present orientation and practice from the insights and experience of others. This guide will not treat the topic of lecturing specifically, even though this technique is a hallmark of many large courses, instead it will center on the special problems associated with instruction in these courses.

Procedure

In late Spring 1976, staff of the Center for Faculty Evaluation and Development (CFED) met with groups of faculty* of the several colleges of Kansas State University who teach introductory courses with no fewer than 100 students per semester, in some instances 1000 or more.

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*The following participants met to offer their insights and recommendations:

Steve Brock - CFED
Jim Carey - History
Bill Cashin - CFED
Bob Clegg - Biochemistry
Basil Curnutte - Physics
Jerry Frieman - Psychology
Dave Laurie - Health, P.E. and Recreation
Joan McNeil - Family and Child Development
Dick Owens - CFED
Tom Parker - Mathematics
Albe Rasmussen - Family Economics
Steve Stover - Geography
Steve Thien - Agronomy
Beth Unger - Computer Science
Larry Williams - Biology

These faculty members were asked to address the following practical questions:

1. What are the special pedagogical problems faced by teachers of the large introductory course?

2. What means have these Kansas State faculty found/employed to solve these problems?

3. What general recommendations might be made regarding the teaching of large introductory courses?

What follows here is a summary and, in some instances, elaborations of points which these teachers made in the discussions. The participants identified four main problem areas: student anonymity, student heterogeneity, utilizing teaching assistants, and testing and grading.

Student Anonymity

In the large introductory course, the individual student frequently feels that he or she is occupying a space in a huge room and that nobody really knows or cares. This problem is exacerbated if the student came from a small town or graduated from a small high school. Students often recognize the difficulty faced by the instructor in a large course to know individual students, for example: A student recently wrote to a professor with whom the student had participated several years prior in a large introductory course. The student's letter, to solicit a recommendation for graduate school, was accompanied by a photo of himself and a phonetic pronunciation of his name in hopes that these cues would prompt a latent memory of his abilities which his signature alone might have left unremembered.

The following procedures are those suggested by the Kansas State faculty to overcome the problem of anonymity:

A. For large introductory courses which have, in addition to lectures, a laboratory component, the teacher can meet students in a highly individualistic way by circulating frequently in the laboratory setting. Here the teacher can answer student questions prompted by the laboratory exercises and demonstrate a willingness to discuss other aspects of the course, the field, etc.

B. The use of a seating chart for the first few weeks of a semester, with students asked to "assign" themselves a particular place in the lecture hall, can aid the teacher in associating names with faces. The teacher should explain the purpose of the request and transmit a willingness to take steps toward making contact with individuals in the course as well as with the group.

C. Some students are reluctant to take advantage of office hours. (Perhaps it is an obligation of teachers of large courses to make the number of office hours proportional to the class size.) To make contact with reluctant students, a teacher might tell, and remind, the class that s/he will be at the student union most mornings at 9:30 a.m. and invite students for coffee and conversation.

As a variation of this theme, the teacher might install a "lunch box" outside his/her office where, throughout the term, students might drop off a note indicating interest in meeting for lunch. The teacher can then schedule to meet these students either individually or in small groups for informal lunchtime interchanges.

D. Even where voice amplification is necessary in a large lecture hall, the teacher who has a long cord for the microphone can circulate in the lecture hall, giving students a chance to comment and raise questions. Generalized reluctance to speak out can be overcome fairly quickly with observation of the braver students' participation. (It may be important to convey to students that, if they fail to understand some portion of the lecture, the teacher may be responsible for the misunderstanding. However, it is the students' responsibility to ask the questions which will help them to understand.)

E. A "help room" might be established, in which old examinations and homework assignments (showing correct responses) together with audio tutorial course materials are available to students to review course content and prepare for examinations. A faculty member or advanced student would be available in the "help room" to assist students answer problems which the course has presented them. (In one instance, the "help room" has been perceived as more helpful than discussion sections. Increased staffing of the "help room" will be tried on an experimental basis, replacing discussion sections.)

F. The teachers of the large course which consists of both large lecture and small discussion sections might take responsibility for leading one or two small groups while graduate teaching assistants lead the others. The students from the lecturer's discussion sections could be expected to participate in the lecture session by asking questions with greater frequency than would their counterparts from the graduate-student-led sections. The teacher who uses this procedure must take steps to insure that students in the graduate-student-led discussion groups do not feel at a "disadvantage". Perhaps periodic guest participation of the lecturer in graduate-student-led sections would relieve any sense of disadvantage.

G. For a large introductory biology course, taught in part by the audio tutorial method, with tapes and printed materials as the main information source, the students could be assigned, in groups of 20, to meet in discussion sections with faculty members from the Biology Department. (While graduate students may assist in the laboratory section of the course and assist in the audio tutorial section, regular faculty could serve as discussion leaders.) The discussion leaders should be given wide latitude to accomplish these broadly defined tasks: (1) to promote informality and interchange with students, (2) to demonstrate the "relevance" or applicability of biology to the students' experiences, and (3) to increase the students' proficiency in written and oral communication. The students should be asked to think of the discussion leader, who meets them once per week and who might assign 25% of their grade, as "their" Biology teacher.

Comment: Except for G. above, which suggests the use of regular faculty in an audio tutorial course, these suggestions for overcoming anonymity in the large course provide ways in which a lecturer can know students and be known as more than a presenter of information.

The more students, especially freshmen, feel like "nobodies" in large introductory classes, the less motivated they are to learn and the less likely they are to do the required work. So, it is worth the teacher's time and effort to get to know the students as individuals. Then eye contacts in the lecture hall can be between "friends", not "strangers". Addressing students by name and knowing their individual interests makes meaningful exchanges in class more likely. By removing the barrier of anonymity, the teacher may increase the students' attention and sense of participation as well as their satifsaction with the course.

Student Heterogeneity

The ways in which students can differ in large introductory courses are many: they may represent many "academic ages" from freshman to graduate student, they may bring vastly different degrees of abilities and preparation, their academic interests and allegiances may be extremely diverse, as may be their motivation to learn.

While the diversity in motivation was not the exclusive concern of the Kansas State faculty with whom we met, it was emphasized as problematical, especially in the cases of "required" courses. Generally, Kansas State faculty tried to overcome low motivation by finding ways to connect course materials, concepts, and facts to the student's interest as a citizen of the world and/or to the student's academic interests lying outside the specific subject area of the introductory course.

A. A history course, for example, might emphasize the ways in which "thinking" about history connects with the general skills of problem-solving, hypothesis testing and speculating. For instance, public reaction to current events might be understood by analyzing antecedent events and how such antecedent events and public reaction to them shapes attitudes toward subsequent events. Questions might be raised about relatively current history, such as: If the American Indians had occupied Alcatraz Island before, rather than after the Kent State catastrophe, might public and governmental reactions have been more severe regarding the Alcatraz take-over? Touching on such questions might provide students with motivation to address historical problems relating to events further removed from contemporary experience.

B. In the sciences it may be useful to devote some lecture time to a consideration of environmental issues. The chemist, for instance, can describe the failure of chemists to solve, thus far, important environmental problems. For automobiles and power plants: What is the chemistry of pollution and why has it not been possible to remove SO_2 from power plants and NO_x from the auto exhausts?

C. Even when subjects covered in a science course do not link directly with environmental issues, like pollution, the use of up-to-date findings in the sciences can increase students' sense of "being where the science action is", positively affecting their motivation to learn. Science or Scientific American as well as other "semi-popular" literature can provide information which is up-to-date and readable on earthquake predication, for example. This could be used to stir increased interest in subjects like plate techtonics and the changes in the earth's form and shape.

D. Students might be encouraged to attend occasional seminars conducted for students and faculty in various departments of the university (if these are not too specialized); the subject of the seminar relating to the current area of the introductory course. Credit could be offered on the basis of the quality of a critical review/analysis of the seminar's content.

E. To solve the problem of diverse academic interests, a course may be organized such that the lecture portion of the course provides the basic core information. This "core" would then be supplemented by modules, or mini-courses which touch on aspects of the subject matter which relate it to fields in which students may be most interested. The extent of the demands made by "core" elements would determine the proportion of the students' grades to result from their participation in these mini-course options.

F. By making the learning objectives explicit in a course taught by the audio-tutorial method, the students are able to understand the minimum competency they will need for completion of a unit. In addition, for a course, say, in introductory biology, learning objectives might be recommended to pre-medical students and/or perspective biology majors which transcend the minimum competencies and appeal to these students' pre-professional motivation. Rather than offering mini-courses which appeal to different kinds of academic interests of students, as in E. above, this procedure offers an approach for dealing with varying intensities of interest in the subject area.

G. Rather than using large class meetings exclusively for lectures, the teacher may devote some time to a more experiential agenda. For instance, a film or an activity which breaks the students into small groups to pursue some activity with a reformation of the total group at the end to describe experiences in the groups, may provide information which all the students experience and which may be discussed in more detail in the discussion sections of the course. Simply breaking the routine may have salutory effects on the students' sense of involvement in the course and thus on their motivation.

H. In general, to adjust a course to the various interests and motivation levels of students, the teacher might give a questionnaire at the beginning of the course which asks about student interests and purposes for taking the course. From such an inquiry, the flexible course instructor might identify strategies for course development which would meet divergent needs.

Utilizing Teaching Assistants

Graduate students who assist in the instruction of a large introductory course frequently have little teaching experience.

A. For this reason alone, it is recommended by many teachers that a concentrated effort be made to formalize a training program for these teaching assistants at least on those teaching skills which are important to the teaching roles they will play in the course. If they are to lead discussions they should be advised on procedures for effective group leadership and their effectiveness in this role monitored. If they are to give lectures, then some guidelines for preparing and presenting a lecture should be part of their training, along with feedback on the effectiveness of their lecture performance.

B. Depending on the role the teaching assistant is to play in the course, undergraduate teaching assistants may be more effective than graduate students. This may be especially true in the case where the teaching assistant is to facilitate small group discussions rather than to present new material in the discussion sections of a large course.

C. The international graduate student who may have only modest English language skills and who is assigned to assist in a large introductory course as a recitation/discussion section leader faces additional problems. The introductory students may be unwilling to make the extra effort to listen carefully to a graduate student with an accent, or may unjustly focus their general frustrations with the course on the communications ability of the teaching assistant. Where there is a real language problem, it may be wise to design a role for the graduate student which is not a presentational one. For instance, the person who may have difficulties in presenting information to a class may be very effective one-on-one with students in a learning center or "help room" or laboratory.

Testing and Grading

It is important to communicate with students at the outset of a course not only about the syllabus but the procedures for testing and for assigning grades.

A. The large course which responds to the constraints of size by relying on objective, computer or other machine-scored examinations often faces some student resistance/resentment. Two approaches used to offset this predicted negative reaction are: (1) While using objective, machine-scorable items for the majority of examination questions, provide two or three problems which call for other computation or short written answers to be hand-scored. (2) Some research evidence has pointed out that student satisfaction with an objective exam can be increased if the student is permitted to comment on the various questions. The objective test should provide a means for the student to note that s/he has a comment to make on item "n", and a place should be provided on the exam for a comment. If the comment demonstrates that the student understands the material and has learned that which the item was designed to test, then credit for a correct response can be given, even if the student had selected an incorrect response option.

B. When tests are administered and returned to a large group, it is important that this activity be well planned and executed. For instance, a teacher who has constructed two forms of an examination should have them organized such that they will be distributed quickly. (Collating the exams in advance such that every second one is the same form makes it possible to pass exams down a row in the lecture hall with every other student receiving the same form.) Some similar organization needs to be designed to return examinations to the students as efficiently as possible.

Additional Observations and Recommendations

A. The Kansas State faculty participants generally underscore the importance of being well organized and approaching the large introductory course with as much efficiency as possible. (If you are lecturing to 240 students and waste one minute you have, in effect, wasted four hours of collective student time.) This is not to suggest an excessively rapid pace or the elimination of "breaks" for student reflection, comments or questions and for appropriate anecdotes.

B. In the large introductory course which is divided into many sections, each led by a faculty member and/or graduate student, it is important to pay attention to staff morale. Frequently, teachers are unaccustomed to or uncomfortable in the role of team member for a course with a generally "fixed" syllabus and testing procedure. It is important to build in as much autonomy as is possible and to manage the course so that each teacher has a "piece of the action" in course decision making and planning. The course "manager" is successful if communication with, and among the section leaders enhances their sense of participation and commitment to the course.

C. If the teacher uses a chalkboard in a large lecture, the writing must be extremely legible and sufficiently large for those in the back of the hall to read it. Overhead transparencies adn 35 mm slides amy be more effective than chalkboard notations for presenting lecture material.

D. It is imperative that the lecturer not be simply a "highlighter" of the text as the students go through it. While repetition is helpful to student learning, "highlighting", if used to an extreme, is often taken as time wasting and condescending. Unlike the audio tape, which may be the main system for conveying information in an audio-tutorial approach, the lecturer cannot be stopped, rewound and played again and, therefore, must repeat and emphasize significant aspects of the subject matter that his/her audience will hear only once.

E. While the majority of the Kansas State faculty participants teach their courses by lecturing to the group and supplement lectures with small recitation/ discussion sections, other have adopted other approaches to instruction. These alternative approaches may be classes generally under the heading of "individualized instruction" or "modularized instruction". Some use written materials (modules) which stress behavioral objectives and mastery testing (the Keller plan or "personalized system of instruction" approach) or use audio-tutorial modules in which audio tapes serve to communicate information together with study guides, including objectives for each module.

The satisfaction which these teachers find with the individualized approach to their large introductory courses suggests that others might consider these alternatives to the lecture-discussion approach as a means for achieving both efficiency in delivering information as well as providing students with a flexible and active role as learners.

F. The enthusiasm which the teacher demonstrates both for the subject matter and for teaching the introductory course can affect student motivation and participation in the course.

G. Each teacher is well advised to be especially attentive to the purposes-objectives of the course and to his/her views of how students best learn and let these guide the methods for differentiating specific functions for lectures, discussion sections, assignments, examinations, use of audio visual aids and teaching assistants, etc.

H. Together with an understanding of goals, it is important that the teacher understand the kinds of skills he or she brings to the teaching. ("Am I really the expert lecturer or are there other teaching skills which I possess in greater measure? How can I play to my pedagogical strengths?")

I. The teaching of the large introductory course is extremely demanding on time and energies for the direct teaching activities as well as for the organizational administrative work and the individual contacts with students. An assessment of the demands on the instructor for the semester in which the large introductory course is to be taught is a prerequisite to finding ways to reduce other professional demands so that sufficient energy can be devoted to the course and work with teaching assistants.